



2019-nCoV Literature Situation Report (Lit Rep)

July 30, 2020

The scientific literature on COVID-19 is rapidly evolving and these articles were selected for review based on their relevance to Washington State decision making around COVID-19 response efforts. Included in these Lit Reps are some manuscripts that have been made available online as pre-prints but have not yet undergone peer review. Please be aware of this when reviewing articles included in the Lit Reps.

Key Takeaways

- **Children younger than 5 years old had 10- to 100-fold higher levels of SARS-CoV-2 RNA in their nasopharynx compared with older children and adults.** [More](#)
- **Viral RNA was detected among >70% of air and surface samples collected from the environment surrounding 13 isolated patients with COVID-19, strengthening support for the use of airborne isolation precautions in their care.** [More](#)
- **There was no clear increase in COVID-19 cases, hospitalizations, or deaths observed after the in-person election in Wisconsin on April 7, which implemented mitigation measures aimed at preventing SARS-CoV-2 transmission that were in alignment with CDC interim guidance.** [More](#)
- **The risk of SARS-CoV-2 transmission among train passengers varied considerably depending on shared travel time and seat location, with a peak attack rate of 4% among passengers who were sitting adjacent to an index case.** [More](#)

Non-Pharmaceutical Interventions

- Weill et al. found that social distancing following US state-level emergency declarations substantially varied by income. Using mobility measures derived from mobile device location data, wealthier areas decreased mobility significantly more than poorer areas. Wealthy areas went from most mobile before the pandemic to least mobile, while the poorest areas went from least to most mobile. The authors suggest that previous research showing that lower income communities have higher levels of preexisting health conditions and lower access to healthcare, coupled with lower income communities exhibiting greater mobility, suggests a double burden of the COVID-19 pandemic in these communities.

Weill et al. (July 29, 2020). Social Distancing Responses to COVID-19 Emergency Declarations Strongly Differentiated by Income. PNAS. <https://doi.org/10.1073/pnas.2009412117>

Transmission

- The risk of SARS-CoV-2 transmission among train passengers varied considerably depending on shared travel time and seat location, with a peak attack rate of 4% among passengers who were sitting adjacent to an index case. Transmission risk increased with longer duration of co-travel, increasing by 1.3% per hour for adjacent passengers. These findings are based on an analysis of the spatial and temporal distribution of SARS-CoV-2 transmission from index patients on high-speed trains in China (n=2,334) and close contacts (n=72,093) who had co-travel times of 0-8 hours.

Hu et al. (July 2020). The Risk of COVID-19 Transmission in Train Passengers: An Epidemiological and Modelling Study. Clinical Infectious Diseases. <https://doi.org/10.1093/cid/ciaa1057>



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- Heald-Sargent et al. followed a cohort of children and adults (n=145) with mild to moderate COVID-19 who were tested for SARS-CoV-2 within one week of symptom onset and found that the youngest children (<5 years) had high amounts of SARS-CoV-2 viral RNA in their nasopharynx (median cycle threshold 6.5 [4.8-12.0]) compared with older children (11.1 [6.3-15.7]) and adults (11.0 [6.9-17.5]). These differences correspond to a 10-fold to 100-fold greater amount of SARS-CoV-2 in the respiratory tract of the youngest children.

Heald-Sargent et al. (July 30, 2020). Age-Related Differences in Nasopharyngeal Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Levels in Patients With Mild To Moderate Coronavirus Disease 2019 (COVID-19). JAMA Pediatrics.

<https://doi.org/10.1001/jamapediatrics.2020.3651>

- A systematic review (13 articles) showed that the household secondary attack rate of COVID-19 varies widely across countries with a range of 5%-50%, unaffected by confounders such as population of the country, lockdown status and geographic location. The symptomatic status of the index case was strongly associated with the secondary attack rate, with very low transmission probability during the asymptomatic phase. The review suggested greater vulnerability of spouses and the elderly population to secondary transmission compared to other household members. Quarantining and isolation were the most effective strategies for prevention.

Shah et al. (July 2020). Secondary Attack Rate of COVID-19 in Household Contacts: Systematic Review. QJM.

<https://doi.org/10.1093/qjmed/hcaa232>

Testing and Treatment

- A systematic review and meta-analysis of eight studies (8 studies with 4,051 patients) evaluated the benefits of steroids in patients with coronavirus infections. Among the studies, 3,416 patients were diagnosed with SARS, 360 patients with MERS, and 275 with COVID-19; 60% patients were administered steroids. The meta-analyses including all studies showed no differences overall in terms of mortality (OR=1.15; 95% CI 0.63-2.10). However, in some studies the patients in the steroid group had more severe symptoms than those in the control group. In contrast, when the meta-analysis was performed restricting only to studies that used appropriate adjustment (e.g., time, disease severity), use of steroids was associated with a lower risk of mortality (HR=0.38; 95% CI 0.22-0.65).

Lee et al. (July 2020). Efficacy of Corticosteroids in Patients with SARS, MERS and COVID-19: A Systematic Review and Meta-Analysis. Journal of Clinical Medicine.

<https://doi.org/10.3390/jcm9082392>

- *[pre-print, not peer-reviewed]* A comparison of serum and dried blood spot samples for detection of SARS-CoV-2 antibodies by ELISA in healthcare workers (n=52) showed strong concordance between the two sample types (Pearson's correlation coefficient=0.98; overall agreement=96.2%).

Amendola et al. (July 30, 2020). Back to School Use of Dried Blood Spot for the Detection of SARS-CoV-2-Specific Immunoglobulin G (IgG) among Schoolchildren in Milan Italy. Pre-print downloaded July 30 from <https://doi.org/10.1101/2020.07.29.20164186>

Clinical Characteristics and Health Care Setting

- During the initial isolation of 13 individuals with COVID-19 at the University of Nebraska Medical Center, Santarpia et al. detected SARS-CoV-2 RNA by RT-PCR in 121/163 (72%) air and surface samples collected. SARS-CoV-2 RNA was detected in all types of samples: high and low-volume air samples, as well as surface samples including personal items, room surfaces, and toilets.

Santarpia et al. (July 2020). Aerosol and Surface Contamination of SARS-CoV-2 Observed in Quarantine and Isolation Care. Scientific Reports.

<https://doi.org/10.1038/s41598-020-69286-3>

- In a cohort study of German patients recently recovered from COVID-19 infection (n=100), cardiovascular magnetic resonance (CMR) imaging revealed cardiac involvement in 78 patients and ongoing myocardial inflammation in 60 patients, independent of preexisting conditions, severity and overall course of the acute illness, and time from the original diagnosis. Compared with healthy controls and risk factor-matched controls, patients recently recovered from COVID-19 had lower left ventricular ejection fraction, higher left ventricle volumes, higher left ventricle mass, and raised native T1 and T2 signals.

Puntmann et al. (July 27, 2020). Outcomes of Cardiovascular Magnetic Resonance Imaging in Patients Recently Recovered From Coronavirus Disease 2019 (COVID-19). JAMA Cardiology. <https://doi.org/10.1001/jamacardio.2020.3557>

Mental Health and Personal Impact

- An online survey of US parents (n=260) found that parents and children (especially teenagers aged 13-18) had increased technology and social media use since the beginning of social distancing due to the COVID-19 pandemic. Controlling for demographic factors, parents and children with higher levels of anxiety (as reported by parents) were more likely to increase their technology and social media use and use of phones to connect. Among parents, higher anxiety was related to using social media for both social support and information seeking.

Drouin et al. (July 27, 2020). How Parents and Their Children Used Social Media and Technology at the Beginning of the COVID-19 Pandemic and Associations with Anxiety. Cyberpsychology, Behavior and Social Networking. <https://doi.org/10.1089/cyber.2020.0284>

Public Health Policy and Practice

- Wisconsin, the first state to hold an election with in-person voting after stay-at-home orders were issued, observed no clear increase in cases, hospitalizations, or deaths after the election. Various mitigation strategies, in line with the CDC guidance and additional measures, were implemented in Milwaukee to prevent the transmission of SARS-CoV-2 at in-person polling venues.
- These data provide preliminary evidence that CDC's interim guidance for precautions at voting sites, including encouraging physical distancing, personal prevention practices, and employing environmental cleaning and disinfection, may lower COVID-19 transmission risk during elections. This report concludes that further risk reduction can be achieved by fully implementing CDC interim guidance, which recommends longer voting periods, and other options such as increasing the number of polling locations to reduce density in indoors in polling locations.

Paradis et al. (July 31, 2020). Notes from the Field: Public Health Efforts to Mitigate COVID-19 Transmission During the April 7, 2020, Election — City of Milwaukee, Wisconsin, March 13–May 5, 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6930a4>

- In a time-series study of influenza and COVID-19 cases in Spain, Coma Redon et al. found that COVID-19 cases may have already been present in the Catalan population when the first imported case was reported on February 25, 2020. The authors suggest that COVID-19 carriers may have been misclassified as influenza diagnoses in primary care, boosting community transmission before public health measures were taken.

Coma Redon et al. (July 29, 2020). Excess Cases of Influenza and the Coronavirus Epidemic in Catalonia: A Time-Series Analysis of Primary-Care Electronic Medical Records Covering over 6 Million People. BMJ Open. <https://doi.org/10.1136/bmjopen-2020-039369>

- Using data from New York State, Holtgrave et al. found large excess burdens in COVID-19 fatality rates in Hispanic (3.5-fold higher) and Black populations (5.4-fold higher) compared to whites. The disparity in Hispanic people appears to be due to differences earlier on in infections, while

disparities in Black people was driven by differences in both infection experience and in the unmet need for hospitalization.

Holtgrave et al. (June 29, 2020). Assessing Racial and Ethnic Disparities Using a COVID-19 Outcomes Continuum for New York State. Annals of Epidemiology.

<https://doi.org/10.1016/j.annepidem.2020.06.010>

- Promotion of routine childhood vaccination to parents using methods including public service announcements and letters, guidance, and webinars for health care providers in New York City resulted in increased vaccine administration among persons aged <24 months starting the week of April 19–25, as the number of new COVID-19 cases declined, and vaccinations returned to a level comparable to 2019 beginning the week of May 17. The authors conclude that the rebound of administration of routine early childhood vaccines in demonstrates the critical role of public health departments and partnerships with numerous stakeholders in childhood vaccination.

Langdon-Embry et al. (July 31, 2020). Notes from the Field: Rebound in Routine Childhood Vaccine Administration Following Decline During the COVID-19 Pandemic — New York City, March 1–June 27, 2020. MMWR. <https://doi.org/10.15585/mmwr.mm6930a3>

Other Resources and Commentaries

- [Reopening K-12 Schools During the COVID-19 Pandemic](#) – JAMA (July 29)
- [COVID-19 and School Closures](#) – JAMA (July 29)
- [On the True Number of COVID-19 Infections: Effect of Sensitivity, Specificity and Number of Tests on Prevalence Ratio Estimation](#) – International Journal of Environmental Research and Public Health (July 24)
- [Age, Sex, and Comorbidities Predict ICU Admission or Mortality in Cases with SARS-CoV2 Infection: A Population-Based Cohort Study](#) – Critical Care (July 28)
- [Don't Gamble the COVID-19 Response on Ecological Hypotheses](#) – Nature Ecology & Evolution (July 29)
- [Characteristics and Quality of US Nursing Homes Reporting Cases of Coronavirus Disease 2019 \(COVID-19\)](#) – JAMA Network Open (July 29)
- [COVID-19: Save Lives with Open Intellectual-Property Licences](#) – Nature (July 28)
- [Home-Based Testing for SARS-CoV-2: Leveraging Prehospital Resources for Vulnerable Populations](#) – The Western Journal of Emergency Medicine (June 15)
- [Why We \(Probably\) Must Deliberately Infect](#) – Journal of Law and the Biosciences (July 25)
- [Plasmodium Falciparum Infection May Protect a Population from SARS-CoV-2 Infection](#) – The Journal of Infectious Diseases (July 29)
- [Public Health Decision Making during Covid-19 — Fulfilling the CDC Pledge to the American People](#) – New England Journal of Medicine (July 29)
- [Divide in Vaccine Belief in COVID-19 Conversations Implications for Immunization Plans](#) – medRxiv (July 29)

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